



Te Reo
the Journal of the Linguistic
Society of New Zealand

Volume 67
Issue 1 (*Regular Issue*)

Research Article

2024
Pages 72-90

August, 2024

Articulate the Kiwi way: perception insights from a language game corpus

Andreea S. Calude
University of Waikato

Jessie Burnette
University of Waikato

This paper is a peer-reviewed contribution from <https://nzlingsoc.makeitso.nz/journal/current-issue>

©*Te Reo* – *The Journal of the Linguistic Society of New Zealand*
Editor: Victoria Chen

Articulate the Kiwi way: perception insights from a language game corpus

Andreea S. Calude & Jessie Burnette
University of Waikato

Abstract

This short communication reports on folk perceptions of New Zealand English lexical variation, specifically regarding which Māori loanwords are widely known by New Zealanders. We inspect the words used in a popular board game which has recently produced a New Zealand Edition – *Articulate* – and comb through these for all loanword uses, drawing comparisons with linguistics research and two popular websites containing lists of “Māori words every New Zealander should know” (Ministry for Culture and Heritage, 2022). We find remarkable overlap between the loanwords used in the board game and the former, but not the latter. The most frequent loanwords included are social culture loanwords, in line with research in other genres. The lack of consistency in spelling and macron usage leads us to believe that board games such as *Articulate* constitute rich sources for folk perceptions of language varieties, showing that even small-scale corpora can provide inroads into thorny questions regarding perceptions of contact-induced lexical variation.

Keywords: Māori loanwords, New Zealand English, language games, lexical variation, folk linguistics, perception dialectology

1 Introduction: why games?

Writing about language play, David Crystal states “Of all areas of language use, I see language play as the one which is most capable of altering popular linguistic perceptions – powerful enough to ‘take on’ prescriptive attitudes and provide an alternative, positive view of language” (1998, p. 44). In highlighting the importance of games based on language play, Crystal also notes that they are extremely prevalent and popular in the media – by his count, two thirds of British radio and television games fall into that category – but also that media word games were “only the tip of the iceberg” (1998, p. 33). In our paper, we turn this view around to look at the language used in word games, not as a vehicle for changing folk perceptions, but as a *source* of folk perceptions about language varieties, in our case, New Zealand English.

Word games are ubiquitous (“everyone can play them without training”, Crystal, 1998, p. 33) and our familiarity with them has enabled researchers to enlist games for a number of

language research-related purposes, such as to create a familiar and friendly atmosphere for participants in aphasia studies (Devane, 2023) or to engender buy-in from (especially) younger participants in gamified approaches to language studies (Veale, 2005; Sandow and Robinson, 2018; Schuring and Zenner, 2023; St. Pierre et al., 2024).

Missing from this research landscape are studies that directly engage with the language used in existing word games as a source for language analysis. Arguable exceptions to this claim are two articles related to the words of the game *Scrabble* (Murray, 1985) and clues found in cryptic crosswords (Aarons, 2015). However, these articles differ in important ways from the analysis included here: 1) their focus is different to ours (Murray conducts a lexicographic study of the words included in the largest *Scrabble* Dictionary of the time; Aarons proposes that the clues given in a cryptic crossword can be shown to constitute a cryptic crossword genre); 2) they are not considering their data as a specific game-set but rather as a family of games (and thus include all allowed *Scrabble* words and possible crossword clues, respectively); 3) their core questions do not focus on perceptions of a particular language variety.

Here, we analyse words included in the recently¹ produced New Zealand Edition of the game *Articulate*, created by Planet Fun (an Auckland-based company). Invented by British designer Andrew Bryceson, the board game *Articulate* was first released in 1992, and went on to achieve great popularity. It has remained in the UK top ten most loved games ever since its release,² taking the top three spot in 2009, ahead of games like *Trivial Pursuit*. The game contains 500 cards from six different categories (Person, World, Object, Action, Nature and Random) and players work in teams, taking turns to describe one word at a time without uttering the word itself (or lemmatised versions of it) to their team-mates. Players move around the board if their team can name intended word(s) on the card(s) they pick up from the card deck within the set time. The object of the game is to get around the board the quickest. Owing to its popularity, there are several expansions of *Articulate*, including a children's version (with slightly fewer cards), and adult versions for British English, American English, Australian English, New Zealand English, Italian, Portuguese, Slovenian, Croatian and German.³

Our analysis focuses exclusively on the New Zealand Edition and we aim to answer two research questions:

(RQ1) Which Māori loanwords are included in the New Zealand Edition of *Articulate*?

(RQ2) How do these findings compare with existing corpus analyses of Māori borrowings?

We hope that answering these questions will contribute to illuminating folk perceptions of Māori loanwords in New Zealand English as we explore the extent to which loanword familiarity perceptions match documented loanword production. Answers to the above questions also have implications for the general area of perceptual dialectology and folk linguistics related to New Zealand English, an area that remains relatively underexplored from a lexical perspective.

¹ Drumond Developments Limited. (2023, October 6). *Articulate around the world* (nuggets from the international versions). <https://www.drumondpark.com/blog/international-versions-articulate>

² Wikipedia. (2021, December 25). *Articulate*. <https://en.wikipedia.org/wiki/Articulate!>

³ Drumond Developments Limited. (2023, October 6). *Articulate around the world* (nuggets from the international versions). <https://www.drumondpark.com/blog/international-versions-articulate>.

2 Background

The use of loanwords from Māori origin in New Zealand English hardly needs an introduction, particularly to the readership of a New Zealand-based linguistics journal. We thus limit the discussion to a short overview of the most relevant research to this work, focusing on three main aspects: 1) what is borrowed; 2) where is it used; and 3) what perceptions might be circulating in relation to said use.

Noted as one of its most distinctive aspects (Deverson, 1991), the use of Māori words in New Zealand English has been observed right from the arrival of British colonists in New Zealand and, fluctuations notwithstanding, has continued through to the present day. In New Zealand English, the borrowing of words is said to have occurred during two major waves (Macalister, 2006), with a possible new, third wave under way (Trye et al., 2023). The types of words borrowed has shifted over the years, as has their rate of adoption (Macalister, 2006). Initial borrowings included proper nouns denoting places and people, e.g. *Taupō*, *Rawhiri*, *Hēmi* and *Hone*, and flora and fauna words, e.g. *kiwi*, *rimu* and *kauri*, as well as some material culture words, e.g. *pā* and *marae*. In recent times, there has been an increase in the adoption of social culture words, such as *mana*, *manuhiri*, and *mātauranga* (Macalister, 2006; Trye et al., 2023). In general, trends are in line with typological research (see for example, Haspelmath and Tadmor, 2009; Poplack, 2018), which suggests the main types of words being borrowed are nouns.

The adoption of loanwords is pervasive in various genres, from spoken conversation (Kennedy, 2001; Calude et al., 2020a; Degani, 2017), to broadcasting language (de Bres, 2006), picture books (Daly, 2007), newspaper articles (Macalister, 2006, amongst others; Davies and Maclagan, 2006; Calude et al., 2019; Levendis and Calude, 2019), internet (science) pages (Calude et al., 2020b) and social media posts (Trye et al., 2019; Trye et al., 2020). Their widespread occurrence is not evenly distributed across speakers, but varies across individuals and topics (Degani, 2010; Calude et al., 2020a; Calude et al., 2019). There are nevertheless indications of loanword entrenchment, for example, the wide variety of hybrid compounds (Degani and Onysko, 2010) and hybrid hashtags (Trye et al., 2020) involving loanwords, and the many loanwords listed in the *New Zealand Oxford Dictionary* (Deverson and Kennedy, 2005), as well as in the New Zealand Edition of the *Oxford English Dictionary* (Salzar, 2023). Various rates of loanword occurrence have been proposed, from 6-7 per 1,000 words (Kennedy, 2001; Macalister, 2006) to as many as 29 per 1,000 words (Calude et al., 2019). The variation in rates is likely due to (at least) three major factors: 1) what is counted as a borrowing (in particular, proper nouns are extremely frequent and counting them increases the rate of occurrence dramatically); 2) the topic of discourse (Māori topics draw out many more loanwords than non-Māori topics) (Degani, 2010; Calude et al., 2019); and 3) a change in progress suggesting that more loanwords are being adopted and used today compared to previous years.

Finally, we come to the area of perception. While previous studies have contributed to a well-rounded understanding of which loanwords are used and where (while still recognising that changes are afoot and that the New Zealand English lexicon remains in flux (see Trye et al., 2023), a lot less is known about the public's perceptions in relation to the use of loanwords, both with respect to how people feel about loanword use and with respect to community beliefs regarding which loans are used. Looking to answer some of these questions, Levendis and Calude (2019) report on flagging practices – “the practice of translating or explaining borrowed words, or of demarcating their occurrence” (p. 1), by means of italicisation, bold face or in-text explanations – in newspaper articles on the topic of *Māori Language Week* (a yearly celebration of the Māori language). The article also probes attitudes expressed by some newspaper editors

and authors regarding widely known Māori words. Findings suggest that while there is wide agreement that there are indeed some Māori words which “the majority of the population” uses, there is less agreement as to which words these are (Levendis and Calude, 2019, p. 7). Moreover, newspaper flagging practices do not reflect reported familiarity, nor listedness of the loanwords in the *New Zealand Oxford Dictionary* (2019, p. 8). Instead, flagging practices appear to be driven by perceptions of loanword use and perhaps, to some extent, by individual preferences, and less so by linguistic factors such as frequency of use, familiarity and dictionary inclusion.

Considering the lack of research on perception in the study of Māori loanwords, the time is ripe to obtain further evidence of which loanwords community members (beyond newspaper editors) assume are widely known and used by everyday New Zealand English speakers. This type of work is located within the field of perceptual dialectology, whose business is to reflect on “regional distribution of linguistic features from the point of view of nonspecialists (the “folk”)” (Preston, 2018, p. 177). One of the questions which researchers in this field ask relates specifically to the ways in which “people believe speech differs” across various regional varieties (ibid). Many studies focus on accents and phonology features (see summary in Preston, 2018), however, ours is focused on lexical variation and in particular on contact-induced lexical variation. We are thus interested in sources of folk perceptions regarding everyday uses and perceived familiarity of Māori loanwords. To this end, we turn our attention to a popular board game, sold widely in shops throughout New Zealand (for example, the Warehouse and Whitcoulls): *Articulate New Zealand Edition*. We propose that the words used in this game reflect folk perceptions because the person (or team) responsible for selecting them is most likely not a linguist or language researcher, but rather a member (or members) of the public. The online story published by the Drummond Developments Limited *Articulate* blog (see footnote 3) does not claim that research or language analysts were involved in producing the new edition games, a missed marketing opportunity were this the case. Unfortunately, we cannot be sure of this as Planet Fun (who produced the New Zealand Edition of the game) did not return our calls.

3 Data and Findings: *Articulate New Zealand Edition* (ANZE) corpus

This paper reports on the use of Māori loanwords in the New Zealand Edition of the game *Articulate*. Thus, our data consists of the 500 cards of the game, each containing 6 words, in total 3,000 words. Each word is assigned to one of six categories: **P**(erson), **W**(orld), **O**(bject), **A**(ction), **N**(ature) and **R**(andom) and spelled with capital letters regardless of word category. With the exception of the **A**(ction) words category, which specifically includes nominalisations (arising from verbs, e.g. *Running, Reading*), categories are grouped by semantic content. The majority of words included are nouns, with the exception of the **A**(ction) words, which retain their verb-like forms, a number of adjectives (e.g. *Interesting, Competent, Eccentric*), some prepositions (*Above, Below*) and a handful of idiomatic phrases included in the **R**(andom) category, e.g. *Hard Yakka, 9 to 5, You're Fired, Kia Ora, Tu Meke*.⁴ Unsurprisingly, there is substantial overlap between the original version of *Articulate* and the *New Zealand Edition*, but three differences between the sets stood out to us.

First, the New Zealand Edition contains phrases, which the original version generally does not (ignoring known problems in compound identification, the largest units included in

⁴ According to Te Aka Māori Dictionary (n.d.), *tumeke* (spelled as one word) means “to be surprised, shocked, startled or frightened”, but the colloquial expression *tu meke* (spelled as two words) in New Zealand English is typically translated as ‘too much’.

the original are compound nouns). Secondly, this newer edition also includes some items that capture lexical innovation which has entered English more generally, for instance the names of several social media platforms are included: *Instagram*, *Facebook*, *Skype* and *WhatsApp*, as well as words like *Tweeting*. And, lastly, this set includes a number of those items often considered most distinctive of New Zealand English and the focus of our analysis: Māori loanwords.



Figure 1. Example of Articulate cards (own picture)

In order to gauge the presence of Māori loanwords, cards were manually inspected for loanword use and all loanwords (including proper nouns) were extracted into a spreadsheet (each author did this task separately to ensure accuracy of loanword identification). Table 1 provides an overview of the loanwords identified, according to their category in the game:

Table 1. Loanword use in the Articulate New Zealand Edition Corpus

Token category ⁵	Common noun loanwords	% of all words in the category	Proper noun loanword tokens	% of all words in the category	TOTAL
PERSON	-	-	14	3%	14 (3%)
WORLD	-	-	45	9%	45 (9%)
OBJECT	8	2%	-	-	8 (2%)
ACTION	-	-	-	-	-
NATURE	31	6%	-	-	31 (6%)
RANDOM	25	5%	3	1%	28 (6%)
TOTAL TOKENS	64		62		126 (4%)

⁵ Individual category percentages are out of the 500 total tokens per category. The TOTAL TOKENS category percentage is out of the full 3000 tokens of the corpus.

A full list of all loanwords included in the game is given in Appendix A. The figures in the table show that with the exception of **A**(ction) words, loanwords are present across all word categories in the game. This is in line with cross-linguistics trends in loanword adoption, whereby nouns are more likely to be borrowed than verbs (see Background).

Predictably, proper noun borrowings occur in the **P**(erson) and **W**(orld) categories, denoting either places with Māori names, e.g. *Taupō*, *Waikato*, or well-known public figures of Māori heritage, e.g. *Kiri Te Kanawa*, *Hone Heke*, *Tiki Taane*. The three proper noun tokens that are included in the **R**(andom) category are *Te Reo Māori* and *Treaty Of Waitangi*, which occurs twice, once as *Treaty Of Waitangi* and once as *The Treaty Of Waitangi* (note the inclusion of the definite article). In general, across all cards, as well as within the loanword set specifically, very few repetitions occur (which is to say that the number of types closely approximates the number of tokens). The *(The) Treaty of Waitangi* item is the only repeated proper noun loanword and only three other content loanwords occur multiple times: *Kiwi Fruit*, *Weka* and *Kea*. Scanning the entire 3,000 word set shows that 65 repetitions occur among the non-loanword set (3% repeated words in the loanword set and 2% repeated words in the non-loanword set). This is probably because repetitions are more likely to be guessed, as they may remind team-mates of clues used previously, and are thus disfavoured.

Of the four items repeated, two occur with different spellings/variants: the proper noun (*Treaty of Waitangi*) occurs once with the definite article and once without it, and the second repeated item (*Kiwi fruit*) is spelled as two words in one instance and as a single word in another. Incidentally, *Kiwi Fruit* is the only Māori loan included in the original *Articulate* word set, and like in the New Zealand Edition, it also occurs twice in that game, once spelled *Kiwi Fruit* and the second time as *A Kiwi Fruit* (both occurring in the nature category). Two loanwords are misspelled in the common noun set: *Toe Toe* (tall-plumed grasses forming large tussocks, cutting grass) and *Toi Toi* (brown creeper, tomtit), both of which are spelled as one word in Māori. A second issue to note in relation to spelling of loanwords is macron use. Though macrons are used, this is inconsistent: eight loanwords are missing macrons (*Hapu*, *Kereru*, *Kumara*, *Manuka*, *Nikau*, *Pohutukawa*, *Pukeko*, *Totara Tree*), while eleven items occur with macrons in the correct place (*Hāngī*, *Kaumātua*, *Kōwhai*, *Pā*, *Pākehā*, *Pāua*, *Pōwhiri*, *Takahē*, *Te Reo Māori*, *Wētā*, *Whānau*). We return to spelling in the discussion.

Having outlined the frequency of loanword occurrence in the card set, the crucial question becomes: on what basis did the producers of the game decide which words to include (and why)? We contacted them but they never returned our call, so we can only speculate about this. As mentioned in the background section, no consultation with language experts is mentioned in the blog post announcing the new edition of the game, indicating to us that this likely did not occur. We also examined a large New Zealand English dictionary and corpora to compare which loanwords included in the ANZE are listed. However, neither corpora, which are described in academic publications, nor large dictionaries (containing hundreds of loanwords, cf. Macalister, 2006) are likely to be the first source of inspiration that comes to mind for members of the public (and indeed producers of word games). So, a final point of comparison was obtained by using search engines to locate lists of Māori loanwords freely available to anyone. This revealed two main websites, given below. Here is a summary of the loanword sources we compared with the set of loanwords extracted from the ANZE:

- 1) the *New Zealand Oxford Dictionary* (Deveson and Kennedy, 2005);
- 2) previous studies of loanwords in other corpora (see list in Appendix B);

- 3) (especially for non-linguists interested in Māori loanwords) the New Zealand Government History lists of “100 Māori words every New Zealander should know”⁶ and “A Māori word a day”;⁷
- 4) and the Māori Language page,⁸ which contains a list of “50 Māori words every New Zealander should know” (this page is funded by Te Taura Whiri i te Reo Māori/Māori Language Commission).

We examined these sources to check the overlap between their listed loanwords and the 64 common noun loanwords (and in some cases, loan phrases) included in the ANZE.

Unsurprisingly, almost all common noun loanwords in ANZE (98%) are listed in the *New Zealand Oxford Dictionary* (the only exception is the phrase *Tu Meke*, ‘too much’). We note that the dictionary does contain other phrases, so its phrasal status is not the reason for its exclusion. Similarly, almost all loanwords have been mentioned in other corpus studies (94%), the only exceptions being: *Tuatua*, *Toi Toi*, *Tiki Tour*, *Tu Meke* (even though corpora did not contain *Kiwifruit*, they did contain *Kiwi* and we counted this as overlap⁹). The high overlap with the dictionary is expected given that the choice of ANZE words rests on prospective players knowing the words well enough to describe them and striving for their team-mates to guess them. In choosing words for the game, consideration would need to be given to that fact that if the words chosen are too esoteric and unfamiliar, the game is likely to be less fun for all involved. The high overlap with corpora points to a close match between production of loanwords and perception of loanword familiarity.

What is perhaps more surprising is the relatively small overlap between the common noun loanwords (and loan phrases) included in the game and those in (non-technical) websites aimed at the wider public, as in lists of loanwords which “every New Zealander should know” (Ministry for Culture and Heritage, 2022). The New Zealand Government History pages had 30% overlap (19 loanwords) in the “100 Māori words every New Zealander should know” list and 31% overlap (20 loanwords) in the “A Māori word a day” list. The Māori Language page had 39% overlap (25 loanwords); slightly higher overlap despite the shorter list (50 words in the latter compared to larger lists in the former, approximately 100 words). There are a number of words from these websites which could have been included in the game but were not, for example, flora and fauna words (*awa* “river”, *motu* “island”, *puke* “hill”, *roto* “lake”, *wai* “water”), any number of the twenty body parts (the one body part which is in the game but not listed by the websites is *puku* “tummy”), a handful of phrases (*e noho rā* “goodbye”, *nau mai* “welcome”) and social culture words (*tapu* “sacred”, *rohe* “boundary”, *mauri* “essential life force”, *noa* “safe”, *ihi* “power”). The low overlap suggests that either the game producers did not use these online word lists as inspiration, or that if they did, they did not agree that the loanwords listed on these pages were suitable for the game (perhaps because they were not deemed sufficiently familiar). It is possible that the perceptions of the game producers regarding these words are incorrect, or that indeed, the lists of loanwords are themselves not compiled on the basis of usage but informed by pedagogical decisions (i.e. the desire to teach

⁶ Ministry for Culture and Heritage. (2022, 13 October). *100 Māori words every New Zealander should know*. <https://nzhistory.govt.nz/culture/maori-language-week/100-maori-words>

⁷ Ministry for Culture and Heritage. (2022, 13 January). *A Māori word A Day*. <https://nzhistory.govt.nz/culture/maori-language-week/365-maori-words>

⁸ Native Council. (n.d.). 50 Māori words every New Zealander should know. *MāoriLanguage.net*. <https://www.maorilanguage.net/maori-words-phrases/50-maori-words-every-new-zealander-know/>

⁹ One referee questions this decision. In a way, there is no right choice here. *Kiwifruit* is more specific in meaning than *Kiwi* (which can be used to refer to the fruit, the bird, or the people, New Zealanders). But of course, there is overlap between the two (the fruit). Given our purpose of documenting loans previously found in other sources (for us, corpora), we took the fact that *Kiwi* occurs in corpora to indicate that *Kiwifruit* could reasonably be thought of as denoting a known and familiar borrowing (albeit with a wider meaning).

certain Māori words to those interested to acquire them). We are not able to comment on this aspect. However, the types of words included on the internet webpage lists range widely in semantic content, from flora and fauna words, objects, concepts and places names, so, we do not believe that the low overlap between the internet lists and the ANZE can be attributed to constraints caused by the six categories of the game.

As suggested by examples such as *Tu Meke*, the loanwords included in this corpus are not all strictly spelled as single words. In fact, approximately 23% of the loanwords (15/64) occur in a compound form involving two or three separate words: *Toe Toe*, *Toi Toi*, *Totara Tree*, *Flax Kete*, *Haere Mai*, *Huhu Beetle*, *Kauri Tree*, *Kia Ora*, *Kiwi Fruit*, *Mako Shark*, *Ponga Tree*, *Rimu Tree*, *Tiki Tour*, *Tu Meke*, *Te Reo Māori*. Of these, nine are hybrid compounds, involving (typically) a Māori loanword as the first element (*Totara*, *Huhu*, *Kiwi*, *Mako*) and an English word as the second element (*Tree*, *Beetle*, *Fruit*, *Shark*). The English word seems to be a hyponym, added as an explanatory term, presumably to help players recall the meaning of the word, e.g. *Totara Tree* is a type of tree, *Mako Shark* a type of shark, a *Kiwi Fruit* a type of fruit and a *Huhu Beetle* a type of beetle (*Flax Kete* is an exception to this).

Given that the game categorises words into (mostly) semantic groups, this presented an opportunity to compare the semantic classifications of loanwords made by the game producers against the categories proposed by Macalister (2006), and traditionally used in linguistics studies of Māori loanwords ever since. A visual comparison is given in Figure 2. We discuss each category in turn (unsurprisingly, the proper nouns match the **P**(erson) and **W**(orld) items). As might be expected, the **N**(ature) category items (31/64 words) matched perfectly with the flora and fauna category used in loanword research (containing words like *Kōwhai*, *Mako Shark*, *Manuka*, *Pāua*, *Pohutukawa*, *Ponga Tree*). One point of difference is that the second mention of *Kiwifruit* occurs in the **O**(bject) category of the game. The **O**(bject) category items (8/64 loanwords) – *Kiwifruit* (spelled as a single word when used as an **O**bject), *Flax Kete*, *Marae*, *Pā*, *Patu*, *Poi*, *Tiki*, *Waka* – are predominantly members of the material culture set, apart from *Kiwifruit*, which is a flora and fauna item. Finally, the remaining 25 words in the **R**(andom) category comprise words from a wider mix of categories: 19 social culture items (*Hāngī*, *Aroha*, *Haka*, *Hui*, *Kai*, *Mana*, *Pōwhiri*, *Tiki Tour*, *Tapu*, *Te Reo Māori*, *Waiata*, *Puku*, and social organisation words, *Hapu*, *Iwi*, *Kaumātua*, *Pākehā*, *Tamariki*, *Wahine*, *Whānau*), 1 material culture word (*Pounamu*), 2 flora and fauna words (*Pipi*, *Moa*), and 3 expressions (*Tu Meke*, *Haere Mai*, *Kia Ora*). The **R**(andom) category is generally deemed to contain the hardest words to describe and the words chosen in this group are indeed more abstract in nature, mostly corresponding to social culture loanwords.

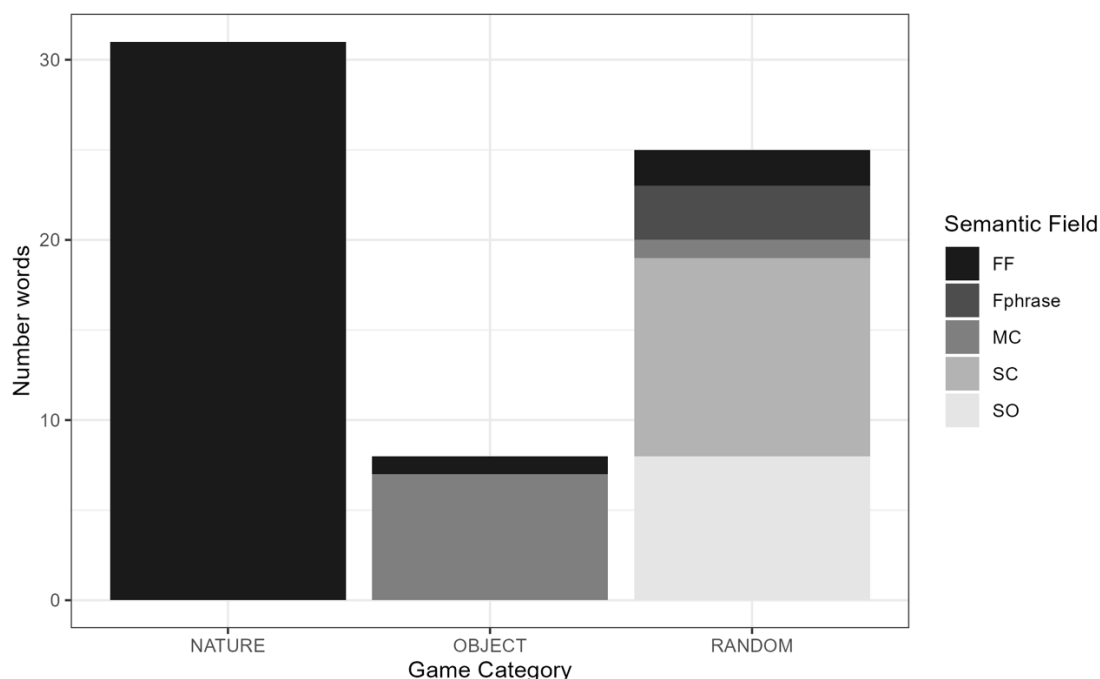


Figure 2. Semantic classes of common noun loanwords included in the ANZE (FF=flora and fauna, Fphrase= formulaic phrase, MC=material culture, SC=social culture, SO=social organisation, n=64)

4 Discussion and conclusion

In this short communication, we take up an opportunity to examine folk perceptions of New Zealand English vocabulary, more specifically, which Māori loanwords game producers felt suitable to include in a board game, *Articulate New Zealand Edition*. We assume these words have been selected due to the game producers' perception that they are widely known to the public, because including a word which few people know would make the game less fun (players would not know how to describe items they do not understand, likewise, team-mates would not be able to guess words they do not know). This means producers of the game are compelled to choose words perceived to be widely familiar to the general (New Zealand) public.

Furthermore, we believe that the words included in the game can be appropriately interpreted as instantiating folk perceptions of a very small group responsible for choosing words to be included in the game. The reason we assume these are 'folk perceptions' (rather than scholarly opinions) is twofold. First, language scholars are more likely to be consistent in spelling conventions and follow standard language as found in dictionaries. In contrast, some of the words included here are written with inconsistent spelling: sometimes with macrons, sometimes without, and sometimes deviating from Māori language spelling (e.g. *Toe Toe* instead of *Toetoe*). Second, companies do not tend to miss the opportunity to inform customers of the research (or "science") that goes into their products so we assume that if such research were to have taken place here, we would be informed of this in marketing posts.

We further found that likely sources of inspiration for loanwords which "every New Zealander should know", namely the New Zealand History pages and the Māori Language website, do not have a good match with the loanwords included in the game (less than 40%).¹⁰

¹⁰ We also note that these pages do not provide any commentary on their sources for inspiration, e.g. on what basis they arrived at the lists they include on their websites.

This could be either because the producers of the game did not consult these sources in the first place or because they did not agree that “every New Zealander” really does know the words included there. Given the reliance on intuition in choosing the loanwords, and their spelling inconsistencies, we interpret the cards as evidencing individual lay perceptions about what New Zealand English is like and which Māori loanwords a typical speaker of the variety knows. It is important to qualify that while this data conveys the folk perceptions of a very small and rather specific individual or team (we do not know exactly how many people were involved in choosing the words), the stakes of these choices are unusually high. Incorrect choices could lead to product failure: the game would not be entertaining if the words chosen were too obscure.

Moreover, we found that the intuitions of the game producers align with loanwords found in corpus studies conducted across multiple genres: newspapers, conversations, picture books and social media (see Appendix B). Added to that, the inclusion of a high number of social culture items matches trends of increased prevalence of words from this semantic category reported in studies scrutinising loanword use in New Zealand English. It is also worth noting that looking at the words which are not Māori loanwords shows a lack of “doubling up” of concepts: (near-)synonymous items are not present in the game, for example, *Fantail* is used but not the equivalent and widely adopted Māori loanword, *pīwakawaka*; conversely, the loanword *Pāua* is used but not the English equivalent, *abalone*. While this could be a coincidence, another interpretation of this omission relates to their perceived near-equivalence of meaning (which is typically avoided in the game). Methodologically, we hope to have shown that in investigating contact-induced lexical variation and related folk perceptions, every opportunity can be considered and even small-scale corpora, such as the words in a board game, can provide some inroads, albeit with certain limitations.

In general, given the popularity of the game and the likelihood that generations of families and friends are thus likely to play it for years to come, the loanwords included in the *Articulate New Zealand Edition* could influence their entrenchment into the New Zealand English lexicon. Although we found a lack of research on games and the language of (board) games in the literature, we hope to have shown that even small-scale corpora of this type can provide novel insights into folk perception of linguistic varieties. If David Crystal is correct that language play is the best way to shift attitudes about language use and prescriptive norms, maybe it is also true that the inclusion of loanwords in language games provides an opportunity for shaping and even changing language attitudes.

Acknowledgements

The authors wish to thank the editor of *Te Reo*, Victoria Chen, and the two anonymous referees for their invaluable suggestions and feedback. Any remaining errors are our own. We also gratefully acknowledge the financial support of the Royal Society Marsden Fund 22-UOW-002.

References

- Aarons, Debra L. 2015. Following orders: playing fast and loose with language and letters. *Australian Journal of Linguistics*, 35(4), 351–380. <https://doi.org/10.1080/07268602.2015.1068459>
- Calude, Andreea S., Mark Pagel and Steven Miller. 2020a. Modelling loanword success - a sociolinguistic quantitative study of Māori loanwords in New Zealand English. *Corpus Linguistics and Linguistics Theory* 16(1), 29-66. <https://doi.org/10.1515/cllt-2017-0010>
- Calude, Andreea S., Steven Miller, Sally Harper and Hemi Whaanga. 2019. Detecting language change: Māori loanwords in a diachronic topic-constrained corpus of New Zealand English newspapers. *Asia and Pacific Variation Journal*, 5(2), 109–137. <https://doi.org/10.1075/aplv.00003.cal>
- Calude, Andreea S., Louise Stevenson, Hemi Whaanga and Te Taka Keegan. 2020b. The use of Māori words in National Science Challenge online discourse. *Journal of the Royal Society of New Zealand*, 50(4), 491–508. <https://doi.org/10.1080/03036758.2019.1662818>
- Crystal, David. 1998. From Scrabble to babble: Reflections on language attitudes and language play. In W. Kühlwein (Ed.), *Language as Structure and Language as Process: In Honour of Gerhard Nickel on the Occasion of His 70th Birthday* (pp. 33–45), FOKUS - Linguistisch-Philologische Studien.
- Daly, Nicola. 2007. Kūkupa, Koro, and Kai: The use of Māori vocabulary items in New Zealand English Children's Picture Books. *New Zealand English Journal*, 21, 20–33.
- Davies, Carolyn and Margaret Maclagan. 2006. Māori Words – Read All About It: Testing the Presence of 13 Māori Words in Four New Zealand Newspapers From 1997-2004. *Te Reo*, 49, 73–99.
- de Bres, Julia. 2006. Māori lexical items in the mainstream television news in New Zealand. *New Zealand English Journal*, 20, 17–34.
- Degani, Marta. 2010. The Pakeha myth of one New Zealand/Aotearoa: an exploration in the use of Maori loanwords in New Zealand English. In R. Facchinetti, D. Crystal, & B. Seidlhofer (Eds.), *From international to local English – and back again* (pp. 165–196). Peter Lang.
- Degani, Marta. 2017. Cultural conceptualisations in stories of Māori-English bilinguals: The cultural schema of MARAE. In F. Sharifian (Ed.), *Advances in cultural linguistics* (pp. 661–682). Springer.
- Degani, Marta and Alexander Onysko. 2010. Hybrid compounding in New Zealand English. *World Englishes*, 29, 209–233. <https://doi.org/10.1111/j.1467-971X.2010.01639.x>

- Devane, Niamh. 2023. *A feasibility randomised controlled trial of elaborated Semantic Feature Analysis delivered in the virtual world, EVA Park*. [Doctoral dissertation, University of London]. <http://openaccess.city.ac.uk/>
- Deverson, Tony. 1991. New Zealand English lexis: the Maori dimension. *English Today*, 7(2), 18–25. <https://doi.org/10.1017/S0266078400005496>
- Deverson, Tony, & Graeme Kennedy. 2005. *New Zealand Oxford Dictionary*. Oxford University Press.
- Drumond Developments Limited. (2023, October 6). Articulate around the world (nuggets from the international versions). <https://www.drumondpark.com/blog/international-versions-articulate>
- Haspelmath, Martin, & Uri Tadmor. 2009. *Loanwords in the World's Languages: A Comparative Handbook*. Walter de Gruyter.
- Kennedy, Graeme. 2001. Lexical borrowing from Maori in New Zealand English. In B. Moore (Ed.), *Who's centric now? The present state of Post-Colonial Englishes* (pp. 59–81) Oxford University Press.
- Levendis, Katharine & Andreea Calude. 2019. Perception and flagging of loanwords – a diachronic case-study of Māori loanwords in New Zealand English. *Ampersand*, 6, 1–9. <https://doi.org/10.1016/j.amper.2019.100056>
- Macalister, John. 2006. The Maori presence in the New Zealand English lexicon, 1850–2000: evidence from a corpus-based study. *English World-Wide*, 27, 1–24. <https://doi.org/10.1075/eww.27.1.02mac>
- Ministry for Culture and Heritage. 2022, 13 January. *A Māori word A Day*. <https://nzhistory.govt.nz/culture/maori-language-week/365-maori-words>
- Ministry for Culture and Heritage. 2022, 13 October. *100 Māori words every New Zealander should know*. <https://nzhistory.govt.nz/culture/maori-language-week/100-maori-words>
- Moorfield, John C. n.d. Tumeke. In *Te Aka Māori Dictionary*. Retrieved June 24, 2024, from <https://maoridictionary.co.nz/search?idiom=&phrase=&proverb=&loan=&histLoanWords=&keywords=tumeke>
- Murray, Thomas E. 1985. The words of Scrabble. *American Speech*, 60(2), 126–140.
- Native Council. n.d. 50 Māori words every New Zealander should know. *MāoriLanguage.net*. <https://www.maorilanguage.net/maori-words-phrases/50-maori-words-every-new-zealander-know/>
- Poplack, Shana. 2018. *Borrowing: Loanwords in the Speech Community and in the Grammar*. Oxford University Press.

- Preston, Dennis. 2018. Perceptual Dialectology. In C. Boberg, J. Nerbonne, & D. Watt (Eds.), *The Handbook of Dialectology* (pp. 177–203). Wiley & Sons.
<https://doi.org/10.1002/9781118827628.ch10>
- Salzar, Danica. 2023. Words from the land of the long white cloud: New Zealand English additions to the OED, *Oxford English Dictionary*,
<https://www.oed.com/discover/words-from-the-land-of-the-long-white-cloud-new-zealand-english-additions-to-the-oed/?tl=true>
- Sandow, Rhys J. and Justyna A. Robinson. 2018. ‘Doing Cornishness’ in the English periphery: Embodying ideology through Anglo-Cornish dialect lexis. *Sociolinguistics in England*, 333–361.
- Schuring, Melissa and Eline Zenner. 2023. The cognitive reality of ‘talking like’: Modeling linguistic stereotype formation in preadolescents roleplay. *Cognitive Linguistics Conference*. https://hartmast.github.io/iclc16/abstracts/ICLC16_paper_69.pdf
- St. Pierre, Thomas, Jida Jaffan, Craig G. Chambers and Elizabeth K. Johnson. 2024. The Icing on the Cake. Or Is it Frosting? The Influence of Group Membership on Children’s Lexical Choices. *Cognitive Science*, 48, 1–17.
<https://doi.org/10.1111/cogs.13410>.
- Trye, David, Felipe Bravo-Marquez, Andreea Calude and Te Taka Keegan. 2019. Māori Loanwords: a Corpus of New Zealand English Tweets. *Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics, Italy* (pp. 136–142).
<https://doi.org/10.18653/v1/P19-2018>
- Trye, David, Andreea Calude, Felipe Bravo-Marquez and Te Taka Keegan. 2020. Hybrid Hashtags: #YouKnowYoureAKiwiWhen Your Tweet Contains Māori and English. *Frontiers* 3(15), 1–19. <https://doi.org/10.3389/frai.2020.00015>
- Trye, David, Andreea S. Calude, Te Taka Keegan and Julia Falconer. 2023. When loanwords are not lone words: Using networks and hypergraphs to explore Māori loanwords in New Zealand English. *International Journal of Corpus Linguistics*, 28(4), 461–499.
<https://doi.org/10.1075/ijcl.21124.try>
- Veale, Angela. 2005. Creative Methodologies in Participatory Research with Children. In S. Greene & D. Hogan (Eds.), *Researching children’s experience: Approaches and methods* (pp. 253–272). SAGE Publications.
- Wikipedia. 2021, December 25. Articulate. <https://en.wikipedia.org/wiki/Articulate>

Appendix A. Full list of Māori loanwords included in the ANZE

A.1 Common nouns and phrases

Loanword	Game Category	NZE Oxford Dictionary (first sense)
Aroha	RANDOM	love, compassion, fellow feeling
Flax Kete	OBJECT	a basket woven esp. from flax
Haere Mai	RANDOM	(a) welcome
Haka	RANDOM	traditional warlike Maori dance accompanied by chanting
Hāngī	RANDOM	a Maori umu or earth oven in which food is cooked by being placed in a put on pre-heated stones and covered
Hapu	RANDOM	a Maori subtribe or group
Hoki	NATURE	a silvery marine food fish related to the hakes
Huhu Beetle	NATURE	the edible larva of a flying beetle, <i>Prionoplus reticularis</i> , found in decayed wood
Hui	RANDOM	a meeting or conference, esp. for discussion of Maori matters
Iwi	RANDOM	a Maori tribe
Kahawai	NATURE	an Australasian food fish, <i>Arripis trutta</i> , resembling salmon
Kai	RANDOM	colloq. food
Kaumātua	RANDOM	a Maori elder
Kauri Tree	NATURE	a massive coniferous timber tree, <i>Agathis australis</i> , of the Northern Island, yielding kauri gum
Kea	NATURE	a large dark-green parrot, <i>Nestor notabilis</i> , mostly confined to the South Island high country
Kea	NATURE	a large dark-green parrot, <i>Nestor notabilis</i> , mostly confined to the South Island high country
Kereru	NATURE	New Zealand pigeon
Kia Ora	RANDOM	a greeting or farewell
Kina	NATURE	an edible green New Zealand sea urchin, <i>Evechinus chloroticus</i>
Kiwi	NATURE	any species or subspecies of flightless nocturnal birds of the New Zealand genus <i>Apteryx</i> with bristly feathers, a long sensitive bill, and no tail
Kiwi Fruit	NATURE	a barrel-shaped fruit with brown hairy skin and bright green flesh
Kiwifruit	OBJECT	a barrel-shaped fruit with brown hairy skin and bright green flesh (dictionary spelling like this)
Kōwhai	NATURE	any of three New Zealand trees of the genus <i>Sophora</i>
Kumara	NATURE	the Polynesian sweet potato
Mako Shark	NATURE	blue and white game shark
Mana	RANDOM	power, control, influence, authority, prestige, charisma
Manuka	NATURE	a common New Zealand shrub or small tree, <i>Leptospermum scoparium</i> , with aromatic leaves and dark wood (also called tea-tree)
Marae	OBJECT	the courtyard in front of a meeting house, the focal point of Maori tribal life
Moa	RANDOM	any various species of large extinct flightless New Zealand birds of the families <i>Dinornithidae</i> and <i>Emeidae</i> , ostrich-like in

		appearance and ranging in height from c. 1 to c. 3 metres and in weight from c. 20 to over 250 kg
Nikau	NATURE	a New Zealand palm, <i>Rhopalostylis sapida</i> , having a central-leaf mass whose heart is edible
Pā	OBJECT	a fortified Maori settlement
Pākehā	RANDOM	a light-skinned non-Polynesian New Zealander, esp. one of British birth or ancestry as distinct from a Maori, a European or white person
Patu	OBJECT	a short club-like Maori weapon usually made of stone
Pāua	NATURE	any of three species of ear-shaped edible univalve of the genus <i>Haliotis</i> (also called abalone)
Pipi	RANDOM	any of several edible molluscs especially the smooth-shelled cockle
Pohutukawa	NATURE	a large spreading North Island coastal tree, <i>Metrosideros excelsa</i> , with masses of bright crimson blossom appearing in mid to late December (also esp. formerly called NZ Christmas Tree)
Poi	OBJECT	a small light ball on a long or short string swung and twirled rhythmically in Maori songs and dances
Ponga Tree	NATURE	a New Zealand tree fern, <i>Cyathea dealbata</i> , having fronds with silvery white undersides (also silver fern)
Pounamu	RANDOM	greenstone
Pōwhiri	RANDOM	a welcoming ceremony on a marae
Pukeko	NATURE	a hen-sized tail-flicking rail, <i>Porphyrio porphyrio</i> , with black and purple plumage and red bill, common throughout New Zealand and found as well in Australia and elsewhere (also called swamp hen)
Puku	RANDOM	the stomach
Rimu Tree	NATURE	a very tall coniferous New Zealand forest tree, <i>Dacrydium cupressinum</i> , with flaking bark and small close-set foliage; its softwood timber much used in building and furniture-making (also called red pine)
Takahē	NATURE	a large very rare blue-green flightless New Zealand rail, <i>Porphyrio</i> (formerly <i>Notornis</i>) <i>mantelli</i> , believed extinct by the end of the 19th century but rediscovered (by Dr Geoffrey Orbell) in the Murchison Mountains of Fiordland in 1948
Tamariki	RANDOM	(in Maori contexts) children
Tapu	RANDOM	(chiefly in Maori contexts) under religious or superstitious restriction, sacred, forbidden
Te Reo Māori	RANDOM	the Maori language (the entry says "Te Reo in full Te Reo Maori")
Terakihi	NATURE	(should be tarakihi, altered erroneous form), a common silvery marine food fish, <i>Nemadactylus macropterus</i> , with a black band behind the head, a commercially viable species
Tiki	OBJECT	a figure in Maori carving representing a human embryo
Tiki Tour	RANDOM	a usually extensive or comprehensive journey of inspection
Toe Toe	NATURE	any of several tall-plumed grasses of the genus, <i>Cortaderia</i> , forming large tussocks, especially <i>C. Toetoe</i> of North Island swamps and sandhills (also called cutting or cutty grass)
Toi Toi	NATURE	brown creeper (also tomtit)

Totara Tree	NATURE	a very large coniferous forest tree, <i>Podocarpus totara</i> , with dense foliage and a light durable reddish timber much used by Maori in carving, waka-building, etc.
Tu Meke	RANDOM	NA
Tuatara	NATURE	either of two species of large iguana-like animal, <i>Sphenodon punctatus</i> or <i>S. Guntheri</i> , now found only on certain offshore islands and sole living representatives of an otherwise long extinct reptilian order
Tuatua	NATURE	either of two species of edible New Zealand bivalve, <i>Paphies subtriangulata</i> or <i>P. Donacina</i> , similar to but smaller than the toheroa
Tui	NATURE	a large New Zealand forest and garden honeyeater and songbird, <i>Prothemadera novaeseelandiae</i> , a noted mimic with glossy dark plumage and distinctive tufts of white throat-feathers (hence the older name parson-bird)
Wahine	RANDOM	a woman or wife
Waiata	RANDOM	a Maori song
Waka	OBJECT	a Maori canoe, esp. of a large ocean-going kind, with straked sides
Weka	NATURE	a large flightless brown rail, <i>Gallirallus australis</i> , an omnivorous scavenger found in four closely related subspecies
Weka	NATURE	a large flightless brown rail, <i>Gallirallus australis</i> , an omnivorous scavenger found in four closely related subspecies
Wētā	NATURE	any of the various often large flightless cricket-like insects of the families <i>Stenopelmatidae</i> or <i>Rhaphidophoridae</i>
Whānau	RANDOM	a family, esp. an extended Maori family

A2. Proper nouns (table continued across two columns)

Proper noun	Game Category
Akaroa	WORLD
Anika Moa	PERSON
Cape Reinga	WORLD
Dame Kiri Te Kanawa	PERSON
Dame Whina Cooper	PERSON
George Nepia	PERSON
Hokianga	WORLD
Hokitika	WORLD
Hokitika Gorge	WORLD
Hone Heke	PERSON
Kahurangi National Park	WORLD
Kai Iwi Lakes	WORLD
Kaikoura	WORLD
Kaiteriteri	WORLD
Kapiti Coast	WORLD
Karangahake Gorge	WORLD

Proper noun	Game Category
Opononi	WORLD
Patea	WORLD
Pauanui	WORLD
Port Waikato	WORLD
Ralph Hotere	PERSON
Taihape	WORLD
Taika Waititi	PERSON
Takapuna Beach	WORLD
Taranaki	WORLD
Taupō	WORLD
Te Kooti	PERSON
Te Papa	WORLD
Te Rauparaha	PERSON
Te Urewera	WORLD
The Stone Store, Kerikeri	WORLD
The Treaty Of Waitangi	RANDOM

Kawarau Bridge	WORLD	Tiki Taane	PERSON
Keri Hulme	PERSON	Timaru	WORLD
Lake Rotorua	WORLD	Tiritiri Matangi Island	WORLD
Lake Tekapo	WORLD	Tokoroa	WORLD
Lake Wakatipu	WORLD	Tongariro National Park	WORLD
Lake Wanaka	WORLD	The Treaty Of Waitangi	RANDOM
Matakana Island	WORLD	Treaty Of Waitangi	RANDOM
Matapouri	WORLD	Turangi	WORLD
Māui	PERSON	Tutukaka	WORLD
Michael Parekowhai	PERSON	Waiouru	WORLD
Mount Maunganui	WORLD	Waipu Cove	WORLD
Mt Taranaki	WORLD	Waitakere Ranges	WORLD
Muriwai Beach	WORLD	Waitomo Caves	WORLD
Ohakune	WORLD	Waka Nathan	PERSON
Ohope Beach	WORLD	Whakarewarewa	WORLD

Appendix B. Corpus studies discussing Māori loanwords in New Zealand English

Bellett, Donella. 1995. Hakas, Hangis, And Kiwis: Māori Lexical Influence On New Zealand English. *Te Reo*, 38, 73–104.

Calude, Andreea, Mark Pagel and Steven Miller. 2020. Modelling loanword success – a sociolinguistic quantitative study of Māori loanwords in New Zealand English. *Corpus Linguistics and Linguistics Theory*, 16(1), 29–66. <https://doi.org/10.1515/cllt-2017-0010>

Calude, Andreea, Louise Stevenson, Hemi Whaanga and Te Taka Keegan. 2020. The use of Māori words in National Science Challenge online discourse. *Journal of the Royal Society of New Zealand*, 50(4), 491–508. <https://doi.org/10.1080/03036758.2019.1662818>

Calude, Andreea, Eline Zenner, Laura Rosseel and Hemi Whaanga. Forthcoming. Māori loanwords in New Zealand English: what can a picture-naming task reveal for language planning? *Journal of Language Problems and Language Planning*, 1–28.

Daly, Nicola. 2007. Kūkupa, Koro, and Kai: The use of Māori vocabulary items in New Zealand English Children's Picture Books. *New Zealand English Journal*, 21, 20–33.

Daly, Nicola. 2009. Overhearing Tangi, Tangaroa, and Taniwha: The Reported Effects of Māori Loanwords in Children's Picture Books on Language Use and Cultural Knowledge of Adult Readers. *Te Reo*, 52, 3–16.

Davies, Carolyn and Margaret Maclagan. 2006. Māori Words – Read All About It: Testing the Presence of 13 Māori Words in Four New Zealand Newspapers From 1997-2004. *Te Reo*, 49, 73–99.

- Degani, Marta and Alexander Onysko. 2010. Hybrid compounding in New Zealand English. *World Englishes*, 29(2), 209–233. <https://doi.org/10.1111/j.1467-971X.2010.01639.x>
- Hay, Jennifer, Margaret Maclagan and Elizabeth Gordon. 2008. *New Zealand English*. Edinburgh University Press.
- Kennedy, Graeme. 1999. From the New Zealand Dictionary Centre. *NZWords*, 2(1), 4.
- Kennedy, Graeme and Shunji Yamazaki. 1998. The Influence of Maori on the New Zealand English Lexicon. In J. M. Kirk (Ed.), *Corpora galore: analyses and techniques in describing English. papers from the Nineteenth International Conference on English Language Research on Computerised Corpora* (pp. 33–44). Rodopi.
- Levendis, Katherine J. 2019. No explanation required: Entrenchment and perception of Māori loanwords in a diachronic newspaper corpus of New Zealand English [Masters thesis, University of Waikato]. University of Waikato Research Commons. <https://hdl.handle.net/10289/12312>
- Levendis, Katherine and Andreea Calude. 2019. Perception and flagging of loanwords – A diachronic case-study of Māori loanwords in New Zealand English. *Ampersand*, 6, 1–9. <https://doi.org/10.1016/j.amper.2019.100056>
- Macalister, John. 1999. Trends in New Zealand English: Some Observations on the Presence of Maori Words in the Lexicon. *New Zealand English Journal*, 13, 38–49.
- Macalister, John. 2006. The Maori presence in the New Zealand English lexicon, 1850–2000: Evidence from a corpus-based study. *English World-Wide*, 27(1), 1–24. <https://doi.org/10.1075/eww.27.1.02mac>
- Macalister, John. 2007a. Revisiting Weka and Waiata: Familiarity with Maori words among older speakers of New Zealand English. *New Zealand English Journal*, 21, 41–50.
- Macalister, John. 2007b. *Weka* or *woodhen*? Nativization through lexical choice in New Zealand English. *World Englishes*, 26(4), 492–506.
- Macalister, John. 2008. Tracking Changes in Familiarity with Borrowings from Te Reo Maori. *Te Reo*, 51, 75–97.
- Mitchell, Yvonne. A., Bree-Anna Thomas, Amanda E. Clifford, A, Georgia H. Kittow and Elaine Reese. 2023. Aotearoa’s linguistic landscape: exploring the use of TRM in English-medium early childhood education. *Journal of the Royal Society of New Zealand*, 1–21. <https://doi.org/10.1080/03036758.2023.2256246>
- Trye, David, Felipe Bravo-Marquez, Andreea Calude and Te Taka Keegan. 2019. Māori Loanwords: A Corpus of New Zealand English Tweets. *Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics*, Italy (136–142). <https://doi.org/10.18653/v1/P19-2018>

- Trye, David, Andreea Calude, Felipe Bravo-Marquez and Te Taka Keegan. 2020. Hybrid Hashtags: #YouKnowYoureAKiwiWhen Your Tweet Contains Māori and English. *Frontiers*, 3(15), 1–19. <https://doi.org/10.3389/frai.2020.00015>
- Trye, David, Andreea Calude, Te Taka Keegan and & Julia Falconer. 2023. When loanwords are not lone words: Using networks and hypergraphs to explore Māori loanwords in New Zealand English. *International Journal of Corpus Linguistics*, 28(4), 461–499. <https://doi.org/10.1075/ijcl.21124.try>